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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/445,991	12/17/1999	MICHAEL B ALLENSON	124-749	1633

7590 07/31/2002

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EXAMINER

INZIRILLO, GIOACCHINO

ART UNIT PAPER NUMBER

2828

DATE MAILED: 07/31/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Applicati n N .

09/445,991

Applicant(s)

ALLENSON ET AL.

Examiner

Gioacchino Inzirillo

Art Unit

2828

-- The MAILING DATE of this c mmunication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.


- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

  
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## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_ 6) ☐ Other: \_\_\_\_.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1 – 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tucker US 5,440,577 (herein after referred to as Tucker) in view of Kushibe et al. US 4,928,285 (herein after known as Kushibe).

Regarding claims 1, 2, 3 and 4, Fig. 1 of Tucker is an embodiment of his invention, which is a series of connected semiconductor lasers, of which only three are shown for exemplary purposes. As an electrical device, Tuckers invention inherently has an impedance. Tucker does however talk somewhat about impedances, see Tucker, column 1 line 64 to column 2 line 12. Tucker teaches in column 6 lines 5 – 44 that the device quantum efficiency for the device is greater than

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or equal to the individual quantum efficiency of one of the light emitting means. More specifically, in lines 5 – 11 of column 6 state that the external quantum efficiencies in excess of 100% are possible. Tucker teaches the invention as outlined in the rejection above, but fails to teach each light emitting element having a respective waveguide. However, Kushibe provides an example of this well known feature. Fig. 1 of Kushibe shows his preferred embodiment, where reference numeral 18 denotes a waveguiding layer that is his optical waveguide. The important benefit of having an optical waveguide is that it allows more efficient coupling of the output light between the light source and where the light is needed. Therefore, it would be obvious to one of ordinary skill in the art to modify Tucker by substituting his light source for the one with the optical waveguide as taught by Kushibe to gain this benefit.

Regarding claims 5 and 6, see Fig. 1 of Tucker where it is shown that the device contains p-n junctions.

Regarding claims 7 and 8, although Tucker does not list these materials as being present in his device, the ones he does list are taught in column 5 lines 1 – 4. Therein he also teaches what one of ordinary skill in the art would know, that the materials can change based on the desired wavelength output. It would be obvious to one of ordinary skill in the art at the time the invention was made to substitute materials if a different output wavelength were desired. Therefore, it would be obvious to one of ordinary skill in the art to use a semiconductor of these recited materials.

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Claims 9, 10, 11 and 12 13, are rejected under 35 U.S.C. 103(a) as being unpatentable over Tucker in view of Kushibe, as applied to claims 1 – 8 above, further in view of Ito et al. US 5,130,531 (herein after known as Ito). Tucker in view of Kushibe teaches the invention as outlined in the rejection above, but fails to teach a photodiode photodetector. However, Ito teaches this well-known device in his patent, see Fig. 1 reference numeral 3. Therefore, it would be obvious to one of ordinary skill in the art to modify Tucker in view of Kushibe with a photodiode as taught by Ito if light detection were desired. Furthermore, the limitation regarding the feedback merely intended use. Differing configurations of apparatus will not change the way a photodiode functions. Whether its output electrical signal is feed to an oscilloscope or a circuit, it will provide the same function. Furthermore, a plurality of photodiodes corresponding to the plurality if light sources, and being connected either in parallel or in series would be obvious to one of ordinary skill in the art. Furthermore, an optical fiber is another form of a waveguide, the usage of which would be more than obvious to one of ordinary skill.

Claims 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tucker in view of Kushibe as applied to claims 1 – 8 above. It is notoriously well known that lasers are at the heart of many communications systems. It would be obvious to one of ordinary skill in the art at the time the invention was made to include the laser of Tucker in a communications system for providing information channels since the laser since the Tucker laser would simplify such a communications system. Tucker's laser eliminates the need for impedance matching, and the excessive heat associated with it. As described by Tucker in column 1 line 64 to column 2 line 12, this impedance matching is necessary to modulate the laser at high frequencies, which one of

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ordinary skill in the art would know is common in communications systems. The waveguides would provide the efficient coupling of the input signal into the output channel.

Claims 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tucker in view of Kushibe as applied to claims 1 – 8 above, and further in view of Hsu US 5,317,440 (herein after known as Hsu). Tucker in view of Kushibe teaches the invention as outlined in the rejection above, but fails to teach a repeater with a light emitting device, photodetector and amplifier. However, Hsu teaches this in his patent, see Fig. 2. Therefore, it would be obvious to one of ordinary skill in the art to modify Tucker in view of Kushibe to be a part of an optical repeater as taught by Hsu.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gioacchino Inzirillo whose telephone number is 703-305-1967. The examiner can normally be reached on M-F 8:30AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Ip can be reached on 703-308-3098. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7721 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

July 17, 2002

  
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